## (12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

# (19) World Intellectual Property Organization

International Bureau



### (43) International Publication Date 18 August 2005 (18.08.2005)

### (10) International Publication Number WO 2005/076658 A1

(51) International Patent Classification<sup>7</sup>:

H04Q 11/00

(21) International Application Number:

PCT/EP2005/000932

- (22) International Filing Date: 26 January 2005 (26.01.2005)
- (25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data: 04090028.4

30 January 2004 (30.01.2004)

- (71) Applicant (for all designated States except US): TECH-NISCHE UNIVERSITÄT BERLIN [DE/DE]; Strasse des 17. Juni 135, 10623 Berlin (DE).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): MAIER, Martin [DE/DE]; Hufelandstrasse 17, 10407 Berlin (DE).
- MÜLLER, Wolfram, H.; Patentanwälte, Maikowski & Ninnemann, Postfach 15 09 20, 10671 Berlin (DE).

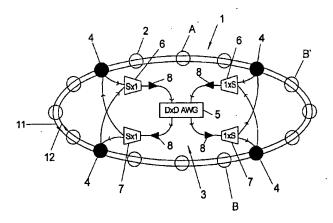
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A HYBRID OPTICAL NETWORK AND A METHOD OF ROUTING DATA PACKETS IN A HYBRID OPTICAL **NETWORK** 



(57) Abstract: The invention regards a hybrid optical network comprising a single channel optical ring network (1) with a plurality of ring nodes (2) and a star subnetwork (3). The star subnetwork (3) comprises a central wavelength router (5), a plurality of combiners (6) being connected to input ports of the central wavelength router (5), and a subset of the ring nodes (4) of the ring network, each node (4) of the subset including a tunable transmitter (26) and a tunable receiver (25) to communicate optical data packets over the star subnetwork (3). Optical data packets routed between two ring nodes (4) of the subset over the star subnetwork (3) are assigned a specific wavelength that determines the routing of the data packets through the central wavelength router (5). The invention further regards a method of routing data packets between a source ring node (2, A) and a destination ring node (2, B) of a hybrid optical network. The method includes pulling incoming data packets from the optical ring network at a subset node of the star subnetwork which is neither a source node nor a destination node, and transmitting the pulled data packets over the star subnetwork (3).



